Claims

1. A sialite binary wet cement, characterized by that it is composed of a "female body" (as a primary component) and a "male body" (as a secondary component) both of which are produced, stored, and transported separately, and are mixed together when they are used, wherein the "female body" and the "male body" each have a specific surface area of 2800-7500 cm^2/g, the "female body" is mainly composed of inorganic cementitious materials and water, and it is slurry, paste or wet powder form during the whole period of its production, storage, transportation and usage; the "male body" is mainly composed of inorganic cementitious materials, and it can be a wet form or a dry powder form during the whole period of its production, storage, transportation and usage;

proportion of the two components of the wet cement is that the "female body" ranges from 20% by weight to 99% by weight, the "male body" ranges from 1% by weight to 80% by weight;

in the "female body", as proportion of its main constituents, CaO ranges from 1% by weight to 60% by weight, Al_2O_3 ranges from 1% by weight to 60% by weight, SiO_2 ranges from 2% by weight to 70% by weight, MgO ranges from 0 % by weight to 40% by weight, and Fe_2O_3 ranges from 0% by weight to 25% by weight; and

in the "male body", pH=7-14, and as proportion of its main constituents, CaO ranges from 0% by weight to 80% by weight, SO_3 ranges from 0% by weight to 55% by weight, and R_2O ranges from 0% by weight to 80% by weight, and R is an alkali metal such as K, Na.

2. The sialite binary wet cement according to claim 1, characterized by that the proportion of the two components of the wet cement is that the "female body" ranges from 60% by weight to 99% by weight, the "male body" ranges from 1% by weight to 40% by weight.

3. The sialite binary wet cement according to claim 1, characterized by that the proportion of the two components of the wet cement is that the "female body" ranges from 70% by weight to 95% by weight, the "male body" ranges from 5% by weight to 30% by weight.

4. The sialite binary wet cement according to claim 1, characterized by that the "female body" further comprises a regulating agent which is added during production period or/and after production of the "female body".

5. The sialite binary wet cement according to claim 1, characterized by that, in the "female body", as the proportion of its main constituents, CaO ranges from 20% by weight to 55% by weight, Al_2O_3 ranges from 2% by weight to 25% by weight, SiO_2 ranges from 20%

by weight to 50% by weight, MgO ranges from 4 % by weight to 13% by weight, and Fe_2O_3 ranges from 0% by weight to 12% by weight.

6. The sialite binary wet cement according to claim 1, characterized by that, in the "male body", as the proportion of its main constituents, CaO ranges from 0% by weight to 40% by weight, SO_3 ranges from 0% by weight to 40% by weight, and R_2O ranges from 0% by weight to 20% by weight, and at least one of CaO, SO_3 and R_2O is greater than 0% by weight.

7. The sialite binary wet cement according to claim 1, characterized by that the "male body" further comprises a regulating agent which is added during production period or/and after production of the "male body".

8. The sialite binary wet cement according to claim 1, characterized by that the "female body" comprises one or more selected from amorphous or/and microcrystal iron-making slag, steel-making slag, blast furnace slag, fly ash, waste glass, phosphorus slag, titanium slag, fluorite slag, coal-burning boiler slage, burned coal fines slage, and their mixtures, as well as water and a regulating agent.

9. The sialite binary wet cement according to claim 1, characterized by that, the cementitious material of the "female body" is one or more selected from pozzolana, pearlite, obsidian, pumice, sand stone, quartz sand, mine tailing, zeolite, silica fume and their mixtures.

10. The sialite binary wet cement according to claim 1, characterized by that the "male body" comprises one or more selected from natural anhydrite, dihydrate gypsum, hemihydrate gypsum, chemical industry gypsum (such as phosphogypsum, fluorgypsum, salt gypsum), lime, calcium hydroxide, chemical industry lime, strong alkali, strong alkali salt, cement clinker and their mixtures, and a regulating agent.

11. The sialite binary wet cement according to claim 10, characterized by that the "male body" further comprises water.

12. The sialite binary wet cement according to claims 4, 7, 8 or 10, characterized by that, the regulating agent for regulating solidifying time and working characteristics of the "male body" and "female body" is made of one or more selected from sugars, honeys, citric acid and citrate, tartaric acid and tartrate, strong alkali, dissolvable carbonate, muriate, dissolvable silicate, dissolvable sulfate, water glass, chlorinate, lignosulphonate, boric acid, borate and their mixtures.

13. The sialite binary wet cement according to claim 12, characterized by that, amount of the regulating agent is from greater than 0 % to 10% by weight based on total dry weight of the "male body" and "female body".

14. The sialite binary wet cement according to claim 12, characterized by that, amount of the regulating agent is from greater than 0 % to 5% by weight based on total dry weight of the "male body" and "female body".

15. The sialite binary wet cement according to claim 1, characterized by that, water content of the "female body" is from greater than 0% to 95% by weight.

16. The sialite binary wet cement according to claim 15, characterized by that, the water content of the "female body" is from 10% to 80% by weight.

17. The sialite binary wet cement according to claim 16, characterized by that, the water content of the "female body" is from 25% to 70% by weight.

18. The sialite binary wet cement according to claims 1 or 10, characterized by that, when a wet-milling is used, water content of the "male body" is from greater than 0% to 95% by weight.

19. The sialite binary wet cement according to claim 18, characterized by that, when a wet-milling is used, the water content of the "male body" is from 15% to 85% by weight.

20. The sialite binary wet cement according to claim 19, characterized by that, when a wet-milling is used, the water content of the "male body" is from 25% to70% by weight.

21. A method for producing the "female body" of the sialite binary wet cement, characterized by that, mixing the starting materials for the "female body" in a predetermined ratio, and then wet-crushing and wet-pulverizing.

22. A method for producing the "female body" of the sialite binary wet cement, characterized by that, according to difference of grindability of the starting materials for the "female body", wet-crushing and wet-pulverizing the starting materials separately, mixing and homogenizing the levigated starting materials in a predetermined ratio.

23. The method for producing the "female body" according to claims 21 or 22,

characterized by that, the amorphous or/and micro-crystal coal-burning boiler slag is manufactured by "adding calcium in the fuel" method comprising the following steps:

getting boiler slags from various industrial boilers which take coal (including the fine coal, slurry coal, lump coal) as its fuel and may include the boilers from thermal power plants, blast furnace and fluidized-bed, coal chemical industry (including coal gasification, coal liquefaction),

adding a given amount of calcium-rich substance (including quick lime, slaked lime and lime stone) and a small amount of mineralizing agents (such as iron powders, calcium fluoride) into the fine coal, slurry coal or lump coal,

melting the slags at high temperature during deslagging process (when the slag is inside hearth or is departing from hearth) or during the treatment process following after the deslagging step so as to melt partially or entirely the slag, and

then carrying out a rapidly cooling step (such as wind cooling or water-quenching cooling).

24. The method for producing the "female body" according to claims 21 or 22, characterized by that, the amorphous or/and micro-crystal coal-burning boiler slag is manufactured by "adding calcium in the slag" method comprising the following steps:

getting boiler slags from various industrial boilers which take coal (including the fine coal, slurry coal, lump coal) as its fuel and may include the boilers from thermal power plants, blast furnace and fluidized-bed, coal chemical industry (including coal gasification, coal liquefaction),

adding a given amount of calcium-rich substance (including quick lime, slaked lime and lime stone) and a small amount of mineralizing agents (such as iron powders, calcium fluoride) into the coal ash and slag,

melting the slags at high temperature during deslagging process (when the slag is inside hearth or is departing from hearth) or during the treatment process following after the deslagging step so as to melt partially or entirely the slag, and

then carrying out a rapidly cooling step (such as wind cooling or water-quenching cooling).

25. The method for producing the "female body" according to claims 21 or 22, characterized by that, taking the amorphous or/and microcrystal glass substance located in the zone between Portland cement and glass in the CaO-Al_2O_3-SiO_2 ternary phase diagram as starting material, and obtaining a microcrystal and/or vitreous substance having potential water-hardening activity through the steps of starting materials selecting, formulating, mix-milling, calcining and melting, then mixing the obtained substance together with water and regulating agents, and carrying out a wet-milling step to form a wet material.

26. The method for producing the "female body" according to claims 21 or 22, characterized by that, mixing natural minerals (one of shale, clay, coal gangue or their mixture) calcined and dewatered at 500-1000℃, together with water and regulating agents, then carrying out a wet-milling step to form a wet material.

27. The method for producing the "female body" according to claims 21 or 22, characterized by that, mixing the calcined products taking clay (one or more selected from waste bricks, waste tiles and waste ceramics, and their mixtures) as a main component, together with water and regulating agents, then carrying out a wet-milling step to form a wet material.

28. A method for producing the "male body" of the sialite binary wet cement, characterized by that, mixing the starting materials for the "male body" in a predetermined ratio, then wet-crushing and wet-pulverizing, or dry-crushing and dry-pulverizing.

29. A method for producing the "male body" of the sialite binary wet cement, characterized by that, according to difference of grindability of the starting materials for the "female body", wet-crushing and wet-pulverizing the starting materials separately, or dry-crushing and dry-pulverizing the starting materials separately, then mixing and homogenizing the levigated starting materials in a predetermined ratio.

30. The method according to claim 28, characterized by that, mixing one or more selected from natural anhydrite, dihydrate gypsum, hemihydrate gypsum, chemical industry gypsum (such as phosphogypsum, fluorgypsum, salt gypsum), lime, calcium hydroxide, chemical industry lime, strong alkali, strong alkali salt, cement clinker and their mixtures, together with water and a regulating agent, and then carrying out a wet-milling step to form a wet material as the "male body".

31. The method according to claim 28, characterized by that, mixing one or more selected from natural anhydrite, dihydrate gypsum, hemihydrate gypsum, chemical industry gypsum (such as phosphogypsum, fluorgypsum, salt gypsum), lime, calcium hydroxide, chemical industry lime, strong alkali, strong alkali salt, cement clinker and their mixtures, together with a regulating agent, and then carrying out a dry-milling step to form powder material as the "male body".

32. A method for producing the sialite binary wet cement according to claim 1, characterized by that, under the premise of satisfying a required specific surface area, using

different combinations of machines suitable to wet-crushing and wet-milling, and using a method called "mixing first, then milling" in which starting materials of the "female body" and starting materials of the "male body" are mixed first in their own proportions respectively and then they are wet-crushed and wet-milled so as to obtain a wet material respectively; and storing and transporting separately the obtained wet materials for the "female body" and "male body".

33. A method for producing the sialite binary wet cement according to claim 1, characterized by that, under the premise of satisfying a required specific surface area, using different combinations of machines suitable to wet-crushing and wet-milling, and using a method called "milling first, then mixing" in which starting materials of the "female body" and "male body" are wet-crushed and wet-milled first respectively according to grindability, then mixing and homogenizing the levigated starting material in their own proportions so as to obtain a wet material respectively; and storing and transporting separately the obtained wet materials for the "female body" and "male body".

34. A method for using the sialite binary wet cement according to claim 1, characterized by that, mixing the "female body" and "male body" to cause a hydrating reaction and a chemical reaction between liquid phase and solid phase, thereby forming cementitous materials which is one of crystal type, gel type, network type or their mixtures.

35. Use of the sialite binary wet cement according to claim 1 in manufacturing concrete, characterized by that, the "female body" and "male body" of the wet cement are mixed and agitated together with water and an aggregate to manufacture concrete.

36. The use of the sialite binary wet cement according to claim 35, characterized by that, the aggregate is selected from one or more of mountain sand, river sand, sea sand, gobi sand, crushed stone, bulk stone, waste stone, coal gangue, clay, mineral classified sand, whole mineral tailings, industrial waste slag and their mixtures.

37. Use of the sialite binary wet cement according to claim 1 in buiding, traffic, water conservancy, mine backfill and timbering, subgrade strengthening or underground engineering fields.